

The coronavirus disease 2019 pandemic prevents patients with pulmonary hypertension from seeking medical help

Grzegorz Kopeć, Anna Tyrka, Kamil Jonas, Wojciech Magoń, Marcin Waligóra, Jakub Stępniewski, Piotr Podolec

Department of Cardiac and Vascular Diseases, Institute of Cardiology, Faculty of Medicine, Jagiellonian University Medical College, John Paul II Hospital, Kraków, Poland

Introduction Pulmonary arterial hypertension (PAH, group 1) and chronic thromboembolic pulmonary hypertension (CTEPH, group 4) are rare diseases of the pulmonary vascular system resulting in progressive heart failure and ultimately death. Poor prognosis of patients with PAH and CTEPH is reflected by progressive clinical symptoms including decreased physical capacity, exertional dyspnea, peripheral edema, ascites, cyanosis, and recurrent syncope.¹⁻⁸ Due to the recent coronavirus disease 2019 (COVID-19) pandemic, patients with cardiopulmonary diseases have been advised against non-essential medical contacts in order to minimize the risk of infection and life-threatening complications.⁹ However, patients with pulmonary hypertension (PH) are characterized by high morbidity and mortality risk due to their condition itself, and they are thus expected to contact healthcare providers in case of symptom exacerbation.¹⁰⁻¹²

In the present study, we aimed to analyze decisions taken by patients with PAH and CTEPH regarding the use of medical resources in response to clinical deterioration at the time of the COVID-19 pandemic and to estimate the magnitude of unjustifiable delay in seeking medical contact.

Methods Study group We interviewed patients with PAH and CTEPH treated in a single high-volume reference center for PH. Eligible patients were diagnosed with PH before March 20, 2020, the day when the COVID-19 epidemic was officially announced by the Polish government. Patients were included in the study if they were being actively treated and monitored in the PH

program. Patients with mental disorders were excluded from the study.

Interview Phone interviews were performed by experienced PH physicians who routinely took care of the study patients. At least 2 attempts were made on 2 different days to contact every patient.

Questionnaire We used a questionnaire comprised of 2 question panels. In the first panel, we asked about the presence of alarming symptoms, which had appeared or exacerbated since March 20, 2020. If the response was positive, the patient was requested to report their duration. In the second panel, we asked patients who had experienced alarming symptoms about any medical contact they had (in person or by phone). Additionally, they were asked about the fear associated with medical contact caused by the COVID-19 epidemic, the time of the potential delay between symptom occurrence and first medical contact, and the impact that the COVID-19 epidemic had on the patients' decisions. Similar questions were also asked in patients who did not report any alarming symptoms. Additionally, each patient was asked if he or she had been diagnosed with COVID-19.

Medical assessment After contacting each patient, based on the reported complaints, the interviewing physician was expected to assess whether an office visit or hospitalization was indicated. Additionally, the physician was asked whether postponing medical contact would have a negative impact on the patient's prognosis.

Correspondence to:
Prof. Grzegorz Kopeć,
MD, PhD, Department
of Cardiac and Vascular Diseases,
Institute of Cardiology, Faculty
of Medicine, Jagiellonian
University Medical College,
John Paul II Hospital, Kraków,
Poland, ul. Prądnicka 80,
31-202 Kraków, Poland,
phone: +48 12 614 33 99, email:
g.kopec@uj.edu.pl
Received: May 7, 2020.

Revision accepted: June 23, 2020.
Published online: July 6, 2020.
Kardiol Pol. 2020; 78 (9): 916-918
doi:10.33963/KP.15488
Copyright by the Author(s), 2020

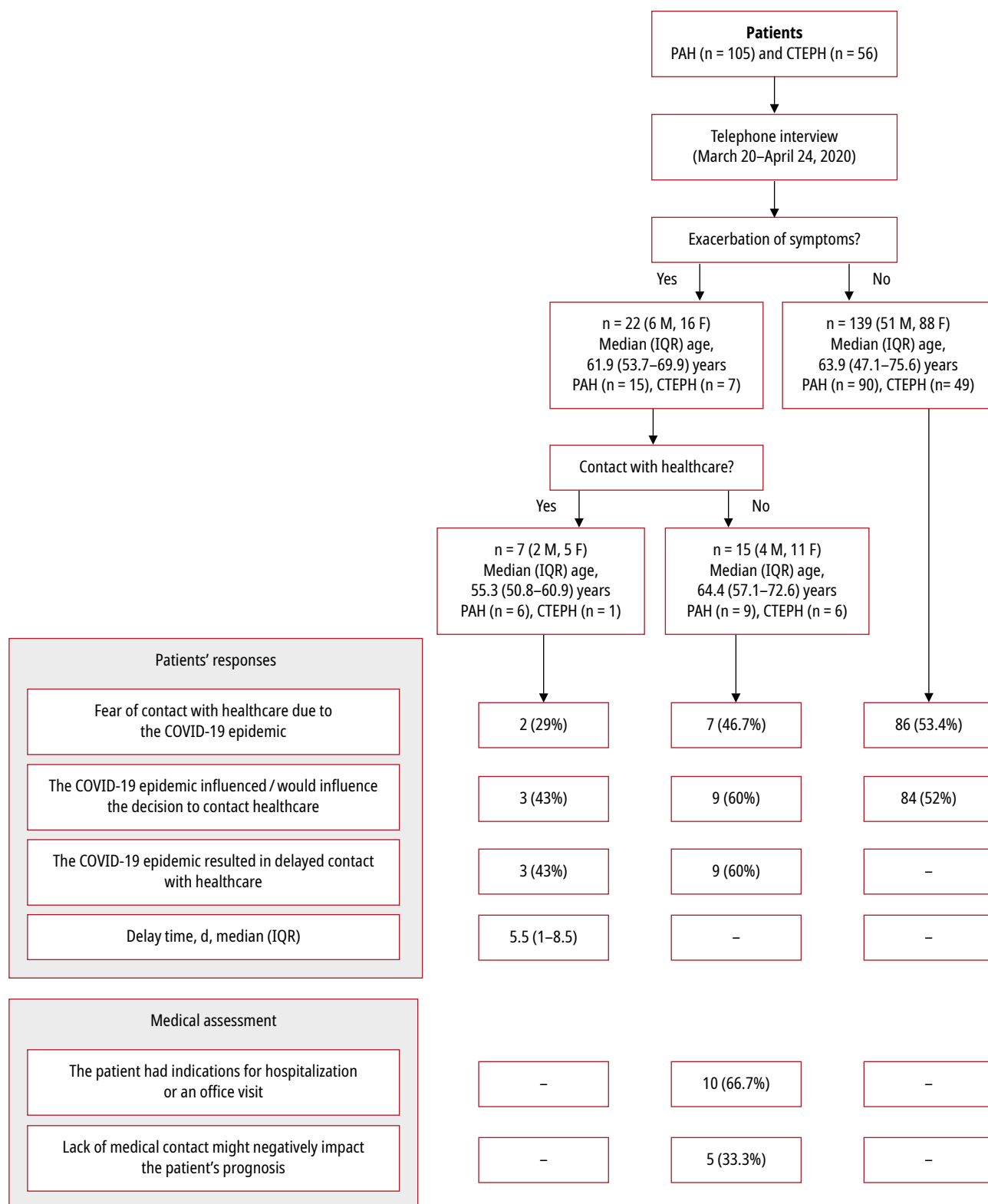


FIGURE 1 Impact of the coronavirus disease 2019 (COVID-19) pandemic on healthcare-seeking behaviors in patients with pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH)
Abbreviations: IQR, interquartile range; M, male; F, female

Statistical analysis Categorical variables were presented as numbers and percentages, and continuous variables, as medians and interquartile ranges. The study protocol was reviewed and accepted by the Bioethical Committee of the Chamber of Physicians and Dentists in Kraków, Poland.

Results and discussion Study patients In our database, we identified 124 patients with PAH and 61 with CTEPH, all of Caucasian origin, who fulfilled the inclusion criteria. Between March 20, 2020 and April 24, 2020, we reached by phone 105 patients with PAH (men, 30 [29%])

at a median (interquartile range) age of 59.2 (43.3–71) years, and 56 patients with CTEPH (men, 27 [48.2%]) at a median (interquartile range) age of 70.8 (61.3–77.1) years. No cases of COVID-19 were reported in this group.

Symptoms of clinical deterioration A group of 22 patients (13.7%) reported at least 1 symptom of clinical deterioration including exacerbation of exertional dyspnea (17 patients [77.2%]), followed by new or increased peripheral edema (9 [41%]), ascites (1 [4.5%]), cyanosis (2 [9%]), and hemoptysis (1 [4.5%]).

Response to alarming symptoms Only 7 patients (32%) who experienced clinical exacerbation contacted healthcare providers. In [FIGURE 1](#), we show how the COVID-19 pandemic has influenced healthcare-seeking behavior in patients with PAH and CTEPH. About half of the study patients experienced fear of contacting the healthcare system and decided to delay or avoid medical contact because of the pandemic.

Medical assessment As assessed by the interviewing physicians, 10 patients (66.7%) who did not contact health service despite alarming symptoms had an indication for hospitalization or an office visit. Additionally, lack of medical contact in 5 patients was considered to negatively impact their prognosis.

Conclusions The COVID-19 pandemic has resulted in altered healthcare-seeking behaviors and fear of medical contact in the population of patients with PAH and CTEPH, leading to avoidance of medical contact despite signs of clinical worsening. Advised strict social distancing resulted in the absence of reported cases of COVID-19, yet at the expense of neglecting PH symptoms that may affect patients' prognosis. Similar conclusions have come from 2 recent studies presenting a decline in the number of patients with myocardial infarction admitted to hospitals¹³ and a marked increase in the time^{14,15} from the onset of myocardial infarction symptoms to first medical contact during the COVID-19 pandemic. Our study results call for communicating with high-risk groups and providing them with clear instructions on healthcare-seeking behaviors in this time of epidemic threat.

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

OPEN ACCESS This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-ND 4.0), allowing third parties to download articles and share them with others, provided the original work is properly cited, not changed in any way, distributed under the same license, and used for non-commercial purposes only. For commercial use, please contact the journal office at kardiologiapolska@ptkardio.pl.

HOW TO CITE Kopeć G, Tyrka A, Jonas K, et al. The coronavirus disease 2019 pandemic prevents patients with pulmonary hypertension from seeking medical help. *Kardiol Pol.* 2020; 78: 916–918. doi:10.33963/KP.15488

REFERENCES

- Kopeć G, Kurzyńska M, Mroczek E, et al. Characterization of patients with pulmonary arterial hypertension: data from the Polish Registry of Pulmonary Hypertension (BNP-PL). *J Clin Med.* 2020; 9: 173.
- Kopeć G, Kurzyńska M, Mroczek E, et al. Database of Pulmonary Hypertension in the Polish Population (BNP-PL): design of the registry. *Kardiol Pol.* 2019; 77: 972–974.
- Jonas K, Waligóra M, Magoń W, et al. Prognostic role of traditional cardiovascular risk factors in patients with idiopathic pulmonary arterial hypertension. *Arch Med Sci.* 2019; 15: 1397–1406.
- Jonas K, Kopeć G. HDL cholesterol as a marker of disease severity and prognosis in patients with pulmonary arterial hypertension. *Int J Mol Sci.* 2019; 20: 3514.
- Jonas K, Magoń W, Waligóra M, et al. High-density lipoprotein cholesterol level and pulmonary artery vasoreactivity in patients with idiopathic pulmonary arterial hypertension. *Pol Arch Intern Med.* 2018; 128: 440–446.
- Jonas K, Kopeć G. A challenging phenotype of pulmonary arterial hypertension. *Pol Arch Intern Med.* 2020; 130: 85–86.
- Kwiatkowska J, Żuk M, Migdał A, et al. Children and adolescents with pulmonary arterial hypertension: baseline and follow-up data from the Polish Registry of Pulmonary Hypertension (BNP-PL). *J Clin Med.* 2020; 9: 1717.
- Magoń W, Stępniewski J, Waligóra M, et al. Virtual histology to evaluate mechanisms of pulmonary artery lumen enlargement in response to balloon pulmonary angioplasty in chronic thromboembolic pulmonary hypertension. *J Clin Med.* 2020; 9: 1655.
- Pawlikowski J. The ethical dimension of prioritization and allocation decisions within the context of the COVID-19 pandemic. *Pol Arch Intern Med.* 2020; 130: 466–472.
- Ryan JJ, Melendres-Groves L, Zamanian RT, et al. Care of patients with pulmonary arterial hypertension during the coronavirus (COVID-19) pandemic. *Pulm Circ.* 2020; 10: 2045894020920153.
- Kopeć G, Waligóra M, Jonas K, et al. Epoprostenol therapy for pulmonary arterial hypertension: the first Polish experience. *Pol Arch Intern Med.* 2019; 129: 65–68.
- Bylica J, Waligóra M, Owsianka I, et al. Time from symptom onset to final diagnosis of pulmonary arterial hypertension in Polish patients. *Kardiol Pol.* 2020; 78: 750–752.
- Metzler B, Siostrzonek P, Binder RK, et al. Decline of acute coronary syndrome admissions in Austria since the outbreak of COVID-19: the pandemic response causes cardiac collateral damage. *Eur Heart J.* 2020; 41: 1852–1853.
- Tam CF, Cheung KS, Lam S, et al. Impact of coronavirus disease 2019 (COVID-19) outbreak on ST-segment-elevation myocardial infarction care in Hong Kong, China. *Circ Cardiovasc Qual Outcomes.* 2020; 13: e006631.
- Ardati AK, Mena Lora AJ. Be prepared. *Circ Cardiovasc Qual Outcomes.* 2020; 13: e006661.